



课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1. 课程名称 Course Title	可穿戴技术与设计 Wearable Technology and Design
2. 授课院系 Originating Department	系统设计与智能制造学院 School of System Design and Intelligent Manufacturing (SDIM)
3. 课程编号 Course Code	SDM412
4. 课程学分 Credit Value	3
5. 课程类别 Course Type	专业选修课 Major Elective Courses
6. 授课学期 Semester	秋季 Fall
7. 授课语言 Teaching Language	中英双语 English & Chinese
8. 授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	白紫千, 助理教授 系统设计与智能制造学院 (设计智造学院) BAI Ziqian, Assistant Professor School of System Design and Intelligent Manufacturing (SDIM) Email: baizq@sustech.edu.cn
9. 实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced
10. 选课人数限额(可不填) Maximum Enrolment (Optional)	待公布 To be announced



11. 授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
	32	0	32		64
学时数 Credit Hours					
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	SDM212 设计思维与工程 Design Thinking and Engineering				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 NIL				
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 NIL				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

This course aims to introduce the knowledge, know-how and trend of wearable technology. This course will guide the student to do design practice by applying the knowledge of wearables. Based on the research, the students will develop the human-centered wearable system and product. In particular, we expect every student

1. to build a connection between knowledge on wearable technology and design practice
2. to understand the goals, problems and structure of wearable system design process
3. to understand different types of wearable devices and related smart materials and technologies
4. to learn and apply techniques for task analysis and user analysis
5. to develop a wearable prototype to solve a real problem, and enhance the wellbeing of people
6. to gain experience in the design and evaluation of practical prototype

本课程的目标是使学生熟悉交互式系统设计的原理和技术，并帮助学生开发关键技能，使学生可以从事用户界面设计和评估领域的工作。特别是我们希望每个学生能够

1. 将可穿戴技术理论知识与实践之间建立联系
2. 了解可穿戴系统设计过程的目标，问题和结构
3. 理解不同种类的可穿戴设备，以及对应的智能材料和技术
4. 学习和应用所学技术进行任务分析和用户分析
5. 开发一款可以解决实际问题并提升幸福指数的可穿戴设备
6. 获得设计和评估实际产品原型的经验

16. 预达学习成果 Learning Outcomes

Upon completion of the subject, students will be able to :

1. understand wearable technology
2. understand application of wearable technology, such as Fashion& Accessories, Medicine, Sports, Fitness, Entertainment, Communication
3. understand user experience design for wearable technology



4. understand the structure of the process and different approaches of wearable system design
5. be able to do research and design for a wearable application scenario
6. be able to perform professional wearable design process as a part of a design group
7. understand the innovative features of wearable system and be able to improve existing prototype

通过学习此课程，学生能够：

1. 了解可穿戴技术
2. 可穿戴技术的应用，如时尚和配饰，医学，运动，健身，娱乐，通信
3. 了解可穿戴技术的用户体验设计
4. 了解可穿戴系统设计的流程结构和不同方法
5. 能够为不同的可穿戴应用场景做研究和设计
6. 能够作为设计团队的一部分执行专业的可穿戴设计过程
7. 了解可穿戴系统的创新功能，并能够改进现有原型

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

Course Schedule					
Week	Hour	Lecture		Practice	Hours
		Lecture Title	Language	Practice	
1	2	An Introduction to Wearable Technology 可穿戴技术介绍	• Bilingual	Discussion & Case study 讨论及案例分析	2
2	2	User Experience Design for wearables 可穿戴用户体验设计	• Bilingual	Discussion & Case study 讨论及案例分析	2
3-4	4	Social Aspects of Wearability 可穿戴技术的社会属性	• Bilingual	Discussion & Case study 讨论及案例分析	4
5-6	4	Flexible Electronics and Textiles for Wearable Technologies 柔性电子及可穿戴纺织技术	• Bilingual	Practicing E-Textile design 练习智能纺织品设计	4
7	2	Midterm presentation and feedback 中期检查及回顾	• Bilingual	Student's Midterm Presentation 学生中期汇报	2
8-9	4	Wearable Sensors for Monitoring of Physical and Physiological 可穿戴传感器及人体生理信号测试	• Bilingual	Practicing E-Textile design 练习智能纺织品设计	4
10	2	Embedded Device UX Design 嵌入式交互设计	• Bilingual	Practicing Embedded Device UX design 练习嵌入式交互设计	2
11-12	4	User Studies 用户研究	• Bilingual	Interviews, observation, contextual enquiries, questionnaires, experiments 访谈，观察，情景再现，问卷，实验	4



13	2	Task Analysis and Task-centered design. 任务分析及任务为中心的设计	• Bilingual	Prototyping 原型制作	2
14-15	4	Applications and Future trends of Wearable Technologies. 未来可穿戴技术应用及趋势	• Bilingual	Prototyping 原型制作	4
16	2	Final Presentation 期末汇报	• Bilingual	Student's final presentation 学生期末汇报	2

18. 教材及其它参考资料 Textbook and Supplementary Readings

<p>Supplementary readings:</p> <ul style="list-style-type: none"> Edward Sazonov, Michael R. Neuman (editors), <u>Wearable Sensors: Fundamentals, Implementation and Applications</u>, 2014, Academic Press/Elsevier, ISBN 978-0124186620 Kate Hartman, <u>Make: Wearable Electronics: Design, prototype, and wear your own interactive garments (Make: Technology on Your Time)</u>, 2014, ISBN-13:978-1449336516 Leah Buechley (Editor), Kylie Peppler (Editor), Michael Eisenberg (Editor), Yasmin Kafai (Editor):<u>Textile Messages: Dispatches From the World of E-Textiles and Education</u>, 2013, ISBN-13: 978-1433119194
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课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance				
课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments	每周 Weekly	50	NIL	评估学生个人作业 To assess students' individual assignment
	第 8 周 8 th week	20	NIL	学生中期项目汇报 To assess students' Midterm Presentation
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告 Final Presentation	第 16 周 End of the 16 th week	30	NIL	评估学生设计项目 To assess students' group design project
其它 (可根据需要 改写以上评估方式) Others (The above may be modified as necessary)				



20. 记分方式 GRADING SYSTEM

- A. 十三级等级制 Letter Grading
 B. 二级记分制 (通过/不通过) Pass/Fail Grading

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过
This Course has been approved by the following person or committee of authority

